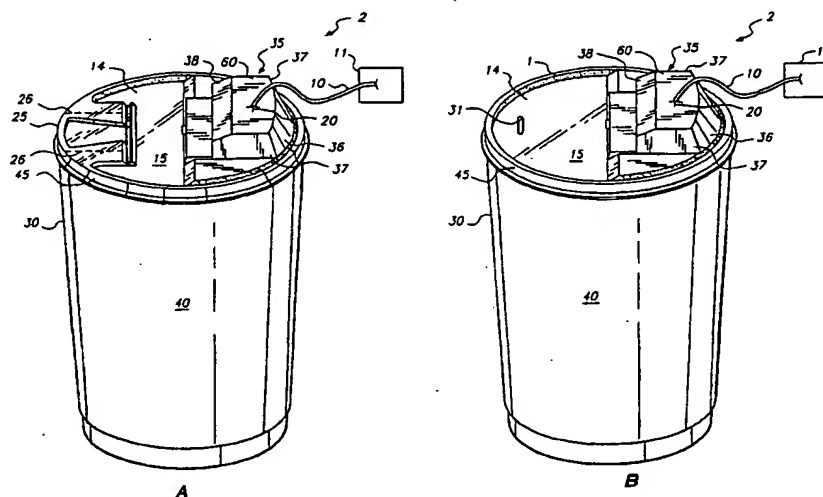




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(54) Title: DETACHABLE LID CONFIGURED FOR HOLDING AND STORING POROUS FILTER BAG



## (57) Abstract

An improved container system preferably includes a container cover (2, 200) which while attached to a container (30) filled with liquid can lower a porous filter bag (5) into the liquid (40), can retract the porous filter bag out from the liquid, and can support the porous filter bag both inside the container system and away from the liquid. Preferably, the improved container system is configured to allow the porous filter bag to be stored away from the liquid while at the same time remain inside the container. To store the porous filter bag away from the liquid, the improved container system comprises a container cover which has a raised volume above the upper edge of the container. This raised volume is preferably in the form of a protrusion (35), a raised central panel (130), a dome shaped sphere (310), or a combination thereof. Preferably, this raised volume also does not interfere with the consumption of the container contents while the container cover is coupled to the container. In addition, the container cover is preferably configured to be removably coupled to a container.

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**DETACHABLE LID CONFIGURED****FOR HOLDING AND STORING POROUS FILTER BAG**Field of the Invention

The present invention relates to detachable, disposable cup lids. More specifically, it relates to a disposable cup lid which is especially suited for the lowering, retracting, and storing of a porous filter bag. Storing the porous filter bag in a manner which prevents continued infusion is important. Further, the present invention could also be applied in the fast food industry, and other applied uses.

Description of the Prior Art

It is well known that hot tea can be made by infusing tea leaves in hot water. This infusion process is commonly known as 'steeping' the tea. If tea is infused for too long a period of time, the tea beverage can become unpleasantly bitter. To infuse a tea beverage, loose tea leaves can be placed into the hot water. However, some means are preferably provided to prevent the user from ingesting the tea leaves. One common means is the use of a porous filter bag: the common tea bag. Generally, the tea bag includes a string or other handle-type device for removing the tea bag. In this way, the user can control the infusion time and simply remove the tea bag when desired.

It is often desirable to purchase a hot tea beverage from a 'take-away' or fast food vendor. Generally, such a purchase includes a disposable cup with disposable lid. This allows the purchaser to quickly purchase the hot tea beverage and continue about their business. Naturally, the purchaser will want to remove the tea bag from the hot water before the beverage becomes bitter. This will require the purchaser to remain on the premises of the vendor until the beverage is sufficiently infused with the tea. Thereafter, the purchaser can remove the tea bag using the string, affix the disposable lid to the cup and depart upon their business. Under many circumstances, this process can delay the purchaser for a longer time period than desired. In the alternative, the purchaser can affix the disposable lid onto the cup while the tea bag is infusing. Once the beverage is

sufficiently infused, the purchaser must detach the lid and then remove the tea bag. This process can be inconvenient especially if the purchaser is operating an automobile. Also, this process can be damaging or dangerous; the purchaser can spill the beverage or be burned by the hot liquid. Further, there may be no place for the purchaser to properly dispose of the used tea bag. It is desirable to have a disposable cup and detachable, disposable lid which allows a purchaser to stop the infusion process without having to remove the detachable lid from the cup. Further, it is desirable to provide such advantages wherein the purchaser can drink the beverage while the tea bag remains are removed from the liquid beverage which terminates the infusion process, but while at the same time, the detachable lid remains affixed to the cup.

There have been a variety of devices for serving and consuming beverages. It is well known in the prior art that a lid, in its simplest form, which attaches to a cup or drinking container can prevent the liquid inside the container from spilling outside the container. More elaborate lids have been utilized to prevent the escape of hot liquids from a container. For example, United States Patent No. 3,459,324 issued to W.L. Miller on January 11, 1968, shows a vented lid for a drinking cup consisting of two disks for the absorption of vapors released from the cup contents. By absorbing the vapors and blocking any liquid, the two disks prevent any vapors or liquid from escaping the container while allowing any built-up pressure to escape. However, unlike the present invention, the Miller reference does not teach the consumption of the liquid while the lid is still attached to the cup or the feature of lowering, retracting, and storing a porous filter bag while the lid is still attached to the cup.

While it is desirable to utilize a lid to prevent the liquid kept inside the container from spilling outside, it is also desirable to allow a user to consume the liquid without removing the lid. For example, United States Patent No. 5,398,843 issued to Warden et al. on March 21, 1995, shows a molded plastic lid for attachment to a disposable cup which allows consumption of the contents inside the cup without removing the lid. However, in marked contrast with the present invention, the Warden reference does not teach the feature of lowering, retracting, or storing a porous filter bag to prevent further

infusion while the lid is attached to the container. Further, United States Patent No. 5,253,781, issued to Van Melle et al. on October 19, 1993 shows a disposable drinking cup lid with a protrusion consisting of an aperture for the consumption of the contents inside the cup and also a raised central panel extending above the edge of the upper edge of the drinking cup. However, like the Warden reference, the Van Melle reference also fails to teach the feature of lowering, retracting, or storing a porous filter bag to prevent further infusion while the lid is attached to the container. Accordingly, the Van Melle reference also substantially differs from the present invention.

The prior art teaches various devices for holding porous filter bags. For example, United States Patent No. 2,728,671, issued to J. Young et al. on August 26, 1954, shows an attachable lid for a cup with a porous container incorporated for diffusion into the cup contents. In contrast, the present invention teaches a porous filter bag which can be removed from the liquid contents inside the cup without removing the detachable lid. Further, United State Patent No. 3,797,642, issued to Dory et al. on March 19, 1974, teaches a device for holding a porous filter such as the tea bag in a dissolving liquid so that the tea bag can quickly be removed from the liquid. However, this device does not teach a container cover to prevent the liquid from escaping the container. In marked contrast, the present invention allows the porous filter to be retracted from the liquid while the cover remains attached to the container thus preventing the liquid inside the container from escaping or spilling. Further, United States Patent No. Des. 282,615, issued to Levine on February 18, 1986, shows a cup with a side pocket for the placement of a tea bag. In contrast, the present invention teaches a porous filter bag fully contained within the cup receptacle, and not held outside the cup or receptacle. Accordingly, the Young, Dory, and Levine references substantially differ from the present invention.

U.S. Patent No. 3,861,284, issued to Costello on January 21, 1975, appears to teach a cup lid for use with a tea bag. The Costello reference allows the tea bag to be stored away from the liquid without removing the lid from the cup. However, in marked contrast with the present invention, the Costello reference requires the user to remove the lid from the container before consuming the liquid. The tall upward extending chamber used to

store the tea bag out of the liquid prevents a user from consuming the liquid without removing the lid from the container. This would be a great disadvantage because the user would not have the spill-proof protection of the lid while consuming the liquid. Further, with the Costello reference, the user would also need to properly dispose of the lid and the used tea bag before consuming the steeped tea beverage. In marked contrast, the present invention can store the used porous filter bag away from the liquid which terminates the infusion process, and also allow a user to consume the steeped liquid while still keeping the lid attached to the cup.

Our own co-pending application serial number 08/529,061 filed on September 15, 1995, and entitled "Cup Lid Having Infusion Bag Retaining Means" teaches a different embodiment of a container cover which includes a protrusion through a central panel. A porous filter bag can be stored within this protrusion and away from the liquid inside the container.

None of the above inventions and patents, taken either singly or in combination, is seen to describe the present invention as claimed.

#### Summary of the Present Invention

The present invention preferably includes a detachable container lid which while attached to a container filled with liquid can lower a porous filter bag into the liquid, can retract the porous filter bag out from the liquid, and can support the porous filter bag both inside and away from the liquid. Preferably, the present invention is configured to allow the porous filter bag to be stored away from the liquid while at the same time remain inside the container. To store the porous filter bag away from the liquid, the present invention can preferably comprise a detachable lid which has a raised volume above the upper edge of the container. This raised volume is preferably in the form of a protrusion, a raised central panel, a dome shaped sphere, or a combination thereof. Preferably, this raised volume also does not interfere with the consumption of the container contents while the present invention is coupled to the container. However, this raised volume above the upper edge of the container is not required; an air gap between the detachable lid and the

contents of the container can serve as a substitute. In addition, the present invention is preferably configured to be removably coupled to a container. Preferably, the interface between the detachable lid and the container forms a liquid resistant seal.

Further, the present invention also preferably has an opening to enable the  
5 consumption of the container contents without interfering with the lowering, retraction, or support of the porous filter bag while either steeping inside the liquid or removed from the liquid to prevent further infusion.

The present invention provides a container cover from which a porous filter bag  
10 may be lowered into a liquid, suspended in the liquid, and removed from the liquid while the container cover is coupled to the container.

The invention is configured to provide a container cover that will receive a porous filter bag with string attachment without modification to the container.

An object built according to the invention can provide a container cover according  
15 to the invention holds a porous filter bag thus handling of the porous filter bag is not necessary since it is discarded with the container cover.

A container cover according to the invention provides a means for controllably mixing a dry chemical with a liquid in a sealed container without exposing either to the external environment.

Finally, the preferred container cover provides improved elements and arrangements  
20 thereof in an apparatus for the purposes described which is inexpensive, dependable, and fully effective in accomplishing its intended purposes.

#### Brief Description of the Drawings

Figure 1A illustrates a perspective view of a first embodiment of the present  
25 invention.

Figure 1B shows a perspective view of an alternate embodiment of the first embodiment found in Figure 1A.

Figure 2 illustrates a side view, partially broken away, of the first embodiment of the present invention.

Figure 3 illustrates a perspective view of a second and preferred embodiment of the present invention.

Figure 4 illustrates shows a cross section view of the embodiment of Figure 3.

Figure 5 illustrates a side view, partially broken away, of a third embodiment of the present invention.

Figure 6 illustrates a side view, partially broken away, of a fourth embodiment of the present invention.

Figure 7 illustrates a top view of the fourth embodiment of the present invention.

Figure 8 illustrates a perspective view of a fifth embodiment of the present invention.

Figure 9 illustrates shows a cross section view of the embodiment of Figure 8.

#### Detailed Description of the Preferred Embodiments

Figure 1A of the drawings illustrates a first embodiment of the present invention. The present invention preferably includes a novel detachable lid 2. Figure 1A also illustrates elements such as a container 40, a string tab 11, and a string 10 which do not necessarily comprise the present invention but instead, are primarily shown to demonstrate a manner in which the present invention can be preferably used.

In Figure 1A, the detachable lid 2 preferably includes a central panel 14, a protrusion 35, a lift tab 25, and an engagement means 45. The central panel 14 has an upper surface 15. The protrusion 35 is upwardly extending and preferably includes a front side 38, a back side 36, two lateral sides 37, and a top 60. Preferably, the top 60 is made from a soft flexible, resilient material.

Further, the container cover 2 also preferably includes an aperture 20 through the top panel 60. The aperture 20 is preferably formed by intersecting incisions or an "X" in the top panel 60. The aperture 20 can be bent out of the co-planar position relative to the upper surface 15 to allow the string 10 and the string tab 11 to pass through. The resilient material of the aperture 20 imparts a spring-urged returning force which naturally tends to return the aperture 20 back into a co-planar state relative to the upper surface 15. The



returning force acts to clamp or grab the string 10 or filter bag 5 and hold them in a desired position relative to the lid 2 and the liquid found thereof. The aperture 20 can preferably be configured to accommodate the insertion of the string 10 and string tab 11 from a filter bag 5 (the filter bag 5 is shown in Figure 2). Further, since the top panel 60 is preferably made from flexible, resilient material, the aperture 20 can resiliently grip the string 10, thus preventing the string 10 from freely moving through the aperture 20 when in a gripped state. Experimentation shows that rolling the string tab 11 into a cylinder around the string 10 aids in inserting the string tab 11 and the string 10 through the aperture 20.

The detachable lid 2 also preferably includes the engagement means 45 for removably coupling the detachable lid 2 and the container 40. The engagement means 45 is preferably in contact with a side wall 30 of the container 40. It is important to note that the engagement means 45 does not need to be continuously in contact with the side wall 30 for container cover 2 and the container 40 to be coupled. Further, the engagement means 45 can preferably be in contact with a portion of the interior of the side wall 30, a portion of the exterior of the side wall 30, or a combination thereof.

Lift tab 25 is preferably located on the central panel 14 between two semi-perforated lines 26. The two semi-perforated lines 26 preferably confines the removal of the lift tab 25 to an area of the central panel 14 between the semi-perforated lines 26. The lift tab 25 is preferably opened from the peripheral edge of the central panel 14 towards the center area of the central panel 14 so that the lift tab 25 can be raised towards the center of the container cover 2 far enough for the user to consume the contents without violating the integrity of the protrusion 35.

Figure 1B illustrates an alternate embodiment of the detachable lid as shown in Figure 1A. The alternate embodiment, as shown in Figure 1B, deletes the semi-perforated lines 26 and the lift tab 25 of the detachable lid as shown in Figure 1A. Instead, the alternate embodiment of Figure 1B preferably includes a drinking aperture 31 which allows the user to consume the contents of the container 40 without removing the detachable lid 2. Further, a lip 1 follows along the circumference of the detachable lid 2.

This lip 1 allows the user to consume the contents of the container 40 without spilling the contents onto the user thus avoiding possible damage to the surroundings and injury to the user.

Figure 2 illustrates a side view in partial cross section of the first embodiment of the present invention. Since Figure 2 shares many of the same elements with Figure 1A, for the sake of clarity, the common elements of both Figures 1 and 2 also share common element numerals. In Figure 2, as in Figure 1A, the detachable lid 2 preferably includes an upper surface 15, a protrusion 35, a lift tab 25, and a container engagement means 45. Further, the detachable lid 2 preferably includes a lower surface 16 and a recess 50.

Figure 2 also illustrates elements such as a container 40, container contents 41, a side wall 30, a porous filter bag 5, a string tab 11, and a string 10 which do not necessarily comprise the present invention but instead, are preferably shown to demonstrate a manner in which the present invention can be configured.

In Figure 2, the detachable lid 2 is preferably configured so that the engagement means 45 is coupled to the top edge 150 of the container 40, and the string 10 is gripped by the resilient aperture 20. In this preferred configuration, as shown in Figure 2, the present invention stores the porous filter bag 5 inside the recess 50 which is within the protrusion 35. While the porous filter bag 5 is stored within the recess 50, it can be seen that the porous filter bag 5 is preferably removed and away from the liquid contents 41 of the container 40 which prevents further infusion. Further, while the porous filter bag 5 is held within the recess 50, the aperture 20 preferably grips either the string 10 attached to the porous filter bag 5 or the porous filter bag 5 directly.

As can be seen in Figure 2, the engagement means 45 preferably contacts the side wall 30 of the container 40. A seal 55 is preferably formed where the side wall 30 and the engagement means 45 are in contact. Further, the engagement means 45 does not need to continuously contact the side wall 30 for the present invention to operate successfully. Under such circumstances, the opening formed by the lift tab 25 is preferably smaller than a normal user's mouth to prevent undesired spilling.

In use, the user would preferably thread the string tab 11 through the aperture 20 from a lower surface 16, through the recess 50 until the porous filter bag 5 is received into the recess 50. The detachable lid 2 can then be placed onto the container 40, the porous filter bag 5 is preferably lowered into the container contents 41, and the porous filter bag 5 is left in the container contents 41 for a desired length of time. When the desired amount of time has expired, the porous filter bag 5 is removed from the container contents 41 by pulling the porous filter bag string tab 11 or the porous filter bag string 10 until the porous filter bag 5 is pulled into the recess 50. Then without removing the detachable lid 2 from the container 40, the user can preferably consume the container contents 41 through the lift tab 25. Lastly, the container cover 2, and the porous filter bag 5 are preferably discarded without direct handling of the porous filter bag 5.

Figure 3 illustrates a perspective view of a second embodiment of the present invention. Figure 1A and Figure 3 are similar and share some of the same elements. For clarity, common elements found in both Figures 1A and 3 share the same reference numerals. The present invention preferably includes a detachable lid 200. As in Figure 1A, Figure 3 also illustrates elements such as a container 40, a string tab 11, and a string 10 which do not necessarily comprise the present invention but instead, are shown to demonstrate a manner in which the present invention can be preferably configured.

In Figure 3, the detachable lid 200 preferably includes a central panel 110, a drinking aperture 100, an opening 140, and a container engagement means 45. The central panel 110 has an upper surface 130. Further, the central panel 110 is preferably raised above a top edge 150 of the container 40. Preferably, the central panel 110 is made from a flexible but resilient material. Further, the container cover 200 also preferably includes an opening 140 which is located through the central panel 110. The opening 140 can be formed by intersecting incisions in the central panel 110 or preferably by a flap formed by an incision in the central panel 110. Figure 3 illustrates the opening 140 which utilizes the flap formed by at least one incision. The opening 140 can be configured to accommodate the insertion of the string 10 and string tab 11 from the porous filter bag 5. The incision 140 is shown as three perpendicular line segments. It can also be formed by a curve such

as a segment of a circle, oval, ellipse, parabola, or other similar forms. Further, because the opening 140 is preferably made from flexible material, the opening 140 resiliently grips the string 10, thus preventing the string 10 from freely moving through the opening 140 when gripped. The flap has the further advantage of allowing a user to easily push the string tab 11 therethrough without having to roll it up.

Like the detachable lid 2 illustrated in Figure 1A, the detachable lid 200 in Figure 3 also preferably includes the engagement means 45 for removably coupling the detachable lid 200 and the container 40. The engagement means 45 preferably wraps around and is in contact with an upper portion of side wall 30 of the container 40. It is important to note that the engagement means 45 does not need to be continuously in contact with the side wall 30 for the detachable lid 200 and of the container 40 to be coupled. Further, the engagement means 45 can preferably be in contact with an interior portion of side wall 30, an exterior portion of side wall 30, or a combination thereof. Preferably, the drinking aperture 100 passes through the central panel 110 and is separate from the opening 140.

Figure 4 illustrates a cross section view of the embodiment of the present invention shown in Figure 3. The common elements of Figures 3 and 4 share common element numerals. In Figure 4, as in Figure 3, the detachable lid 200 preferably includes an upper surface 130, a central panel 110, a drinking aperture 100, an opening 140, and a container engagement means 45. Further, the detachable lid 200 preferably includes a lower surface 120. Figure 4 also illustrates elements such as a container 40, container contents 41, a side wall 30, a porous filter bag 5, a string tab 11, and a string 10 which do not necessarily comprise the present invention but instead, are shown to demonstrate a manner in which the present invention can be preferably configured.

In Figure 4, the detachable lid 200 is preferably configured so that the engagement means 45 is coupled to the container 40, and the string 10 is gripped by the opening 140. The central panel 110 in this embodiment is preferably raised above the top edge 150 to a height which is sufficient to allow the porous filter bag 5 to be removed from the container contents 41 when the porous filter bag 5 is in contact with the lower side 120. In this preferred configuration, as shown in Figure 4, the present invention can store the

porous filter bag 5 under the raised central panel 110 so that the porous filter bag 5 is close to the lower surface 120 and at the same time away from the container contents 41 so that the infusion process is terminated. While the porous filter bag 5 is stored under the raised central panel 110 and possibly in contact with the lower surface 120, it can be seen that the porous filter bag 5 is thus removed and away from the liquid container contents 41. Further, while the porous filter bag 5 is held under the central panel 110 and out of the container contents 41, the aperture 20 preferably resiliently grips either the string 10 attached to the porous filter bag 5 or the filter bag 5 directly. It is also possible to pull a portion of the porous filter bag 5 through the aperture 140. This can be advantageous for pulling larger bags out of the liquid container contents 41 of the cup 40 or to more firmly grip the assembly of the porous filter bag 5 and string 10 by the aperture 140.

As can be seen in Figure 4, the engagement means 45 preferably contacts the side wall 30 of the container 40. A seal 55 is preferably formed where the side wall 30 and the engagement means 45 is in contact. Further, the engagement means 45 does not need to continuously contact the side wall 30 for the present invention to operate successfully.

In use, the user would preferably push the string tab 11 through the opening 140 from the lower side 120 side to the upper side 130 until the porous filter bag 5 is directly under the central panel 110 and in contact with the lower side 120. The detachable lid 200 can then be placed onto the container 40, the porous filter bag 5 is then lowered into the liquid container contents 41, and the porous filter bag 5 can then be left in the container contents 41 for a desired length of time. When the desired amount of time has expired, the porous filter bag 5 is removed from the container contents 41 by pulling the porous filter bag string tab 11 or the porous filter bag string 10 until porous filter bag 5 is under the raised central panel and possibly in contact with the lower side 120. Then without removing the detachable lid 200 from the container 40, the infusion process is discontinued, and the user can preferably consume the container contents 41 through the drinking aperture 100. Lastly, the detachable lid 200, and the porous filter bag 5 are preferably discarded without direct handling of the wet porous filter bag 5.

Figure 5 illustrates a third embodiment of the present invention. Since Figure 5 shares many of the same elements with Figure 4, for the sake of clarity, the common elements of Figures 4 and 5 also share common element numerals. As in Figures 1 and 3, Figure 5 also illustrates elements such as a container 40, a string tab 11, and a string 10 which do not necessarily comprise the present invention but instead, are shown to demonstrate a manner in which the present invention can be preferably configured.

In Figure 5, a detachable lid 300 utilizes a dome 310 with a lower surface 340 which can replace the central panel 14 as found in Figures 1 and 2 and the central panel 110 as found in Figures 3 and 4. Preferably, the dome 310 can be a spherical shape and also incorporate a drinking aperture 320 and an opening 330. Further, the dome 310 is preferably composed of a flexible, resilient material. The drinking aperture 320 is preferably configured to allow the user to consume the container contents 41 without removing the detachable lid 300. Preferably, the opening 330 is configured to allow the string 10 and the string tab 11 to be threaded through the opening 330 starting at the lower surface 340. Further, the opening 330 preferably resiliently grips either the string 10 attached to the porous filter bag 5 or the porous filter bag 5 itself.

In Figure 5, the engagement means 45 is preferably configured to secure the detachable lid 300, and more specifically the dome 310, to the container 40.

Figure 6 illustrates a fourth embodiment of the present invention. Since Figure 6 shares many of the same elements with Figure 5, for the sake of clarity, the common elements of Figures 5 and 6 also share common element numerals. As in Figures 2, 4, and 5, Figure 6 also illustrates elements such as a container 40, a string tab 11, a string 10, and a porous filter bag 5 which do not necessarily comprise the present invention but instead, are shown to demonstrate a manner in which the present invention can be preferably configured.

In Figure 6, a detachable lid 400 preferably has a top surface 420 and a bottom surface 440. This top surface 420 and bottom surface 440 can replace the central panel 14 as found in Figures 1 and 2, the central panel 110 as found in Figures 3 and 4. Preferably, the top surface 420 and the bottom surface 440 is made from a flexible,

resilient material and mounted flush with a top edge 150 of the container 40 when the detachable lid 400 is coupled to the container 40. Further the top surface 420 and the bottom surface 440 also can incorporate a drinking aperture 410 and a resilient opening 430. The drinking aperture 410 is preferably configured to allow the user to consume the container contents 41 without removing the detachable lid 400. Preferably, the opening 430 is configured to allow the string 10 and the string tab 11 to be threaded through the opening 430 starting through the lower surface 440. Further, the opening 430 preferably resiliently grips either the string 10 attached to the porous filter bag 5 or the porous filter bag 5 itself. In Figure 6, the engagement means 45 is preferably configured to secure the detachable lid 400 to the container 40.

Figure 7 illustrates a top view of the fourth preferred embodiment. The drinking aperture 410 and the opening 430 to grip either the string 10 or the porous filter bag 5 are preferably separate and distinct. However, the location of the drinking aperture 410 relative to the opening 430 can be varied without departing from the spirit and scope of the present invention.

Figure 8 illustrates a perspective view of a fifth embodiment of the present invention. Figure 1A and Figure 8 are similar and share some of the same elements. For clarity, common elements found in both Figures 1A and 8 share the same reference numerals. The present invention preferably includes a detachable lid 500.

In Figure 8, the detachable lid 500 preferably includes a central panel 110, a drinking aperture 520, and a container engagement means 45. Further, the container cover 500 also preferably includes an opening 510 which is located through the central panel 110. The opening 510 is configured to be large enough to receive a portion of a porous filter bag 5 while preserving the structural integrity of the central panel 110. Additionally, the opening 510 is also configured to accommodate the insertion of the string 10 and string tab 11 from the porous filter bag 5 without rolling up the string tab 11 before insertion.

Like the detachable lid 2 illustrated in Figure 1A, the detachable lid 500 in Figure 8 also preferably includes the engagement means 45 for removably coupling the detachable lid 500 and the container 40.

Figure 9 illustrates a cross section view of the embodiment of the present invention shown in Figure 8. The common elements of Figures 8 and 9 share common element numerals. In Figure 9, as in Figure 8, the detachable lid 500 preferably includes, a central panel 110, a drinking aperture 520, an opening 510, and a container engagement means 45. Figure 9 also illustrates elements such as a container 40, container contents 41, a porous filter bag 5, a string tab 11, and a string 10 which do not necessarily comprise the present invention but instead, are shown to demonstrate a manner in which the present invention can be preferably configured.

In Figure 9, the detachable lid 500 is preferably configured so that the engagement means 45 is coupled to the container 40, and a portion of the porous filter bag 5 is gripped by the opening 510. In this configuration, as shown in Figure 9, the opening 510 can receive this portion of the porous filter bag 5 so that the received portion of the porous filter bag 5 is securely held by opening 510. As can be seen in Figure 9, the opening 510 is sufficiently small that the porous filter bag 5 is snugly held so that there is sufficient friction between the gripped portion of the porous filter bag 5 and the opening 510 to prevent the porous filter bag 5 from falling into the container 40. Further, while the opening 510 is securely holding the portion of the porous filter bag 5, the porous filter bag 5 can be away from the contents 41 inside the container 40 so that the infusion process is terminated.

It is to be understood that the provided illustrative examples are by no means exhaustive of the many possible uses for the present invention. For example, the shape of the detachable cup lid is not limited to the raised surface described in Figure 3, the dome shape described in Figure 5, or the flush surface described in Figure 6.

From the foregoing description, one skilled in the art can easily ascertain the essential characteristics of this invention, and without departing from the spirit and scope thereof, can make various changes and modification of the invention to adapt it to various



usages and conditions. For example, one skilled in the art could easily adapt the detachable lid to dispense hazardous materials in a sealed container.

## CLAIMS

We claim:

1. A detachable lid configured to attach to a container having a single upper ring, the container for holding a liquid at any level up to the upper rim, the detachable lid comprising:
  - a. a top surface positioned above the upper rim a sufficient distance to allow an ordinary porous filter bag to be suspended therefrom above the liquid and a bottom surface;
  - b. a fastener configured for securely attaching the detachable lid to the container;
  - c. a first opening located through the detachable lid for passing a draw string of a porous filter bag therethrough wherein the first opening is resiliently closable and wherein the bottom surface is configured for storing the porous filter bag away from the liquid while the fastener attaches the detachable lid to the container; and
  - d. a second opening located through the detachable lid wherein the liquid can be consumed without removing the detachable lid from the container.
2. The detachable lid according to claim 1 wherein the top surface forms a dome shape which is raised above the fastener.
3. The detachable lid according to claim 1 wherein the top surface is mounted flush with the fastener.

1 4. The detachable lid according to claim 1 wherein a portion of the top surface is  
2 raised above the fastener.

1 5. The detachable lid according to claim 1 further comprising the porous filter bag  
2 detachably coupled to the first opening.

1 6. The detachable lid according to claim 1 wherein the second opening further  
2 comprises a lift tab for removably covering the second opening.

1 7. The detachable lid according to claim 6 herein the lift tab further comprises a semi-  
2 perforated line.

1 8. The detachable lid according to claim 1 wherein the fastener contacts the container  
2 continuously about an entire circumference of the container.

1 9. The detachable lid according to claim 1 wherein the fastener contacts a portion of  
2 an entire circumference of the container.

1 10. The detachable lid according to claim 1 wherein the fastener contacts an exterior  
2 side wall of the container.

1 11. The detachable lid according to claim 1 wherein the fastener contacts an interior  
2 side wall of the container.

1 12. The detachable lid according to claim 1 wherein the fastener contacts both an  
2 interior side wall of the container and an exterior side wall of the container.

1 13. The detachable lid according to claim 1 wherein the first opening further comprises  
2 gripping means wherein the first opening is configured to release the gripping means by  
3 drawing the draw string of the porous filter bag through the first opening.

1 14. The detachable lid according to claim 13 wherein the gripping means is a resilient  
2 and flexible material.

1 15. The detachable lid according to claim 13 wherein the gripping means further  
2 comprises intersecting incisions through the detachable lid at the first opening.

1 16. The detachable lid according to claim 13 wherein the gripping means further  
2 comprising an incision through the detachable lid at the first opening.

1 17. A detachable lid configured for attaching to a container having a single upper ring,  
2 the container for holding a liquid at any level up to the upper rim, the detachable lid  
3 comprising:

4 a. a top surface positioned above the upper rim a sufficient distance to allow  
5 an ordinary porous filter bag to be suspended therefrom above the liquid  
6 and a bottom surface ;

7 b. a fastener configured for securely attaching the detachable lid to the  
8 container;

9 c. a raised area coupled to the fastener and configured to be disposed within  
10 the detachable lid wherein the raised area is located above the fastener and  
11 the liquid can be consumed without removing the detachable lid from the  
12 container and wherein the bottom surface is configured for storing the  
13 porous filter bag away from the liquid while the fastener attaches the  
14 detachable lid to the container; and

15           d.     a resiliently closeable aperture including a string clamping means located  
16                   through the raised area configured to pass a string of a porous filter bag  
17                   therethrough.

1     18.     The detachable lid as claimed in claim 17 wherein the raised area is a dome shaped  
2     structure.

1     19.     The detachable lid as claimed in claim 17 wherein the fastener contacts a portion of  
2     an entire circumference of the container.

1     20.     The detachable lid as claimed in claim 17 wherein the fastener contacts an interior  
2     side wall of the container.

1     21.     The detachable lid as claimed in claim 17 wherein the aperture further comprises  
2     gripping means wherein the aperture is configured to open by drawing the draw string of  
3     the porous filter bag through the aperture.

1     22.     The detachable lid as claimed in claim 21 wherein the gripping means is a resilient  
2     material.

1     23.     The detachable lid as claimed in claim 21 wherein the gripping means further  
2     comprises intersecting incisions through the detachable lid at the aperture.

1     24.     The detachable lid as claimed in claim 21 wherein the gripping means further  
2     comprises an incision through the detachable lid at the aperture thus forming a flexible  
3     flap.

1 25. The detachable lid as claimed in claim 17 further comprises a drinking aperture  
2 located through the detachable lid wherein the liquid can be consumed from the container  
3 without removing the detachable lid from the container.

1 26. The detachable lid according to claim 17 further comprising a lift tab for removing  
2 a portion of the detachable lid wherein the liquid is capable of being consumed from the  
3 container without removing the detachable lid from the container.

1 27. The detachable lid according to claim 26 wherein the lift tab further comprising a  
2 semi-perforated line.

1 28. A detachable lid configured to attach to a container having a single upper rim, the  
2 container for holding a liquid at any level up to the upper rim, the detachable lid  
3 comprising:

- 4 a. a top surface positioned above the upper rim a sufficient distance to allow  
5 an ordinary porous filter bag to be suspended therefrom above the liquid  
6 and a bottom surface;
- 7 b. a fastener configured for securely attaching the detachable lid to the  
8 container;
- 9 c. a first opening located through the detachable lid for passing a draw string  
10 of a porous filter bag therethrough wherein the first opening can receive a  
11 portion of the porous filter bag and wherein the bottom surface is  
12 configured for storing the porous filter bag away from the liquid while the  
13 fastener attaches the detachable lid to the container; and
- 14 d. a second opening located through the detachable lid wherein the liquid can  
15 be consumed without removing the detachable lid from the container.

1 29. The detachable lid according to claim 28 wherein the top surface is raised above  
2 the fastener.

- 1 30. The detachable lid according to claim 28 wherein the top surface forms a dome  
2 shape which is raised above the fastener.
- 1 31. The detachable lid according to claim 28 wherein the top surface is mounted flush  
2 with the fastener.
- 1 32. The detachable lid according to claim 28 wherein a portion of the top surface is  
2 raised above the fastener.
33. A method of infusing a liquid inside a container with contents of a porous filter  
2 bag while a detachable lid is coupled to the container comprising the steps of:
- 3 a. securing the detachable lid to the container;
  - 4 b. opening a resiliently closeable aperture located through the detachable lid by  
5 releasing gripping means wherein the resilient aperture is configured to  
6 allow the liquid to be consumed without removing the detachable lid from  
7 the container; and
  - 8 c. lowering the porous filter bag into the liquid by releasing a draw string  
9 attached to the porous filter bag.
- 1 34. A method of infusing a liquid inside a container with contents of a porous filter  
2 bag which includes a draw string while a detachable lid is coupled to the container  
3 comprising the steps of:
- 4 a. inserting the draw string upwardly through an opening in the detachable lid;
  - 5 b. securing the detachable lid to the container while the draw string passes  
6 through the opening;
  - 7 c. lowering the porous filter bag into the liquid by releasing a draw string  
8 attached to the porous filter bag; and
  - 9 d. raising the porous filter bag from the liquid and drawing a portion of the  
10 porous filter bag through the opening so that the porous filter bag is held

11 out of the liquid while the detachable lid remains in place wherein the  
12 detachable lid allows the liquid to be consumed without removing the  
13 detachable lid from the container.

1 35. A method of terminating an infusion process by removing a porous filter bag from  
2 a liquid inside a container without removing a detachable lid from the container, the  
3 method comprising the steps of:

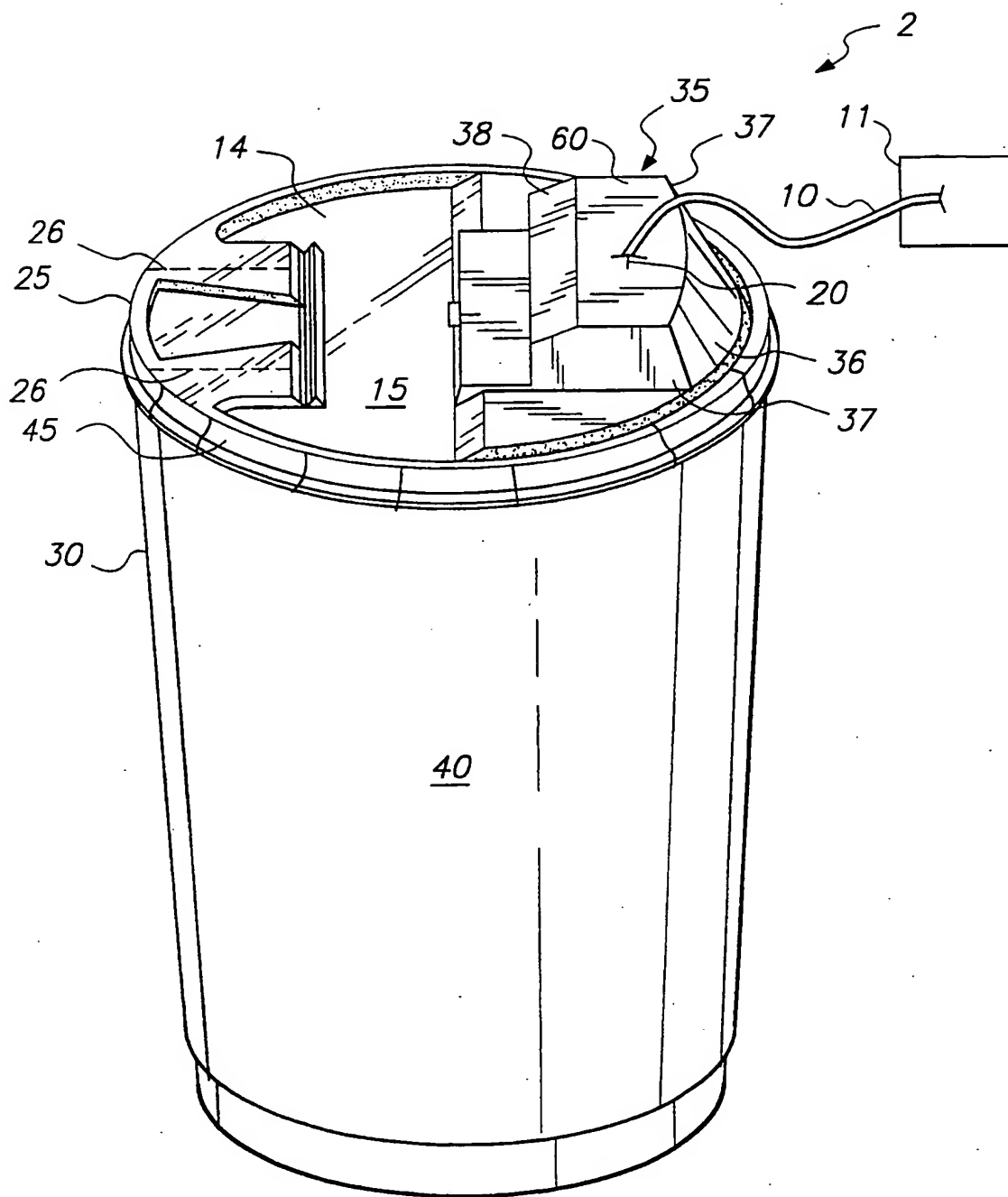
- 4 a. securing the detachable lid to the container;
- 5 b. raising the porous filter bag away from the liquid thus stopping the infusion  
6 process wherein the detachable lid allows the liquid to be consumed without  
7 removing the detachable lid from the container; and
- 8 c. closing a resiliently closeable aperture thus holding the porous filter bag  
9 away from the liquid.

1 36. A method of terminating an infusion process by moving a porous filter bag away  
2 from a liquid inside a container without removing a detachable lid from the container, the  
3 method comprising the steps of:

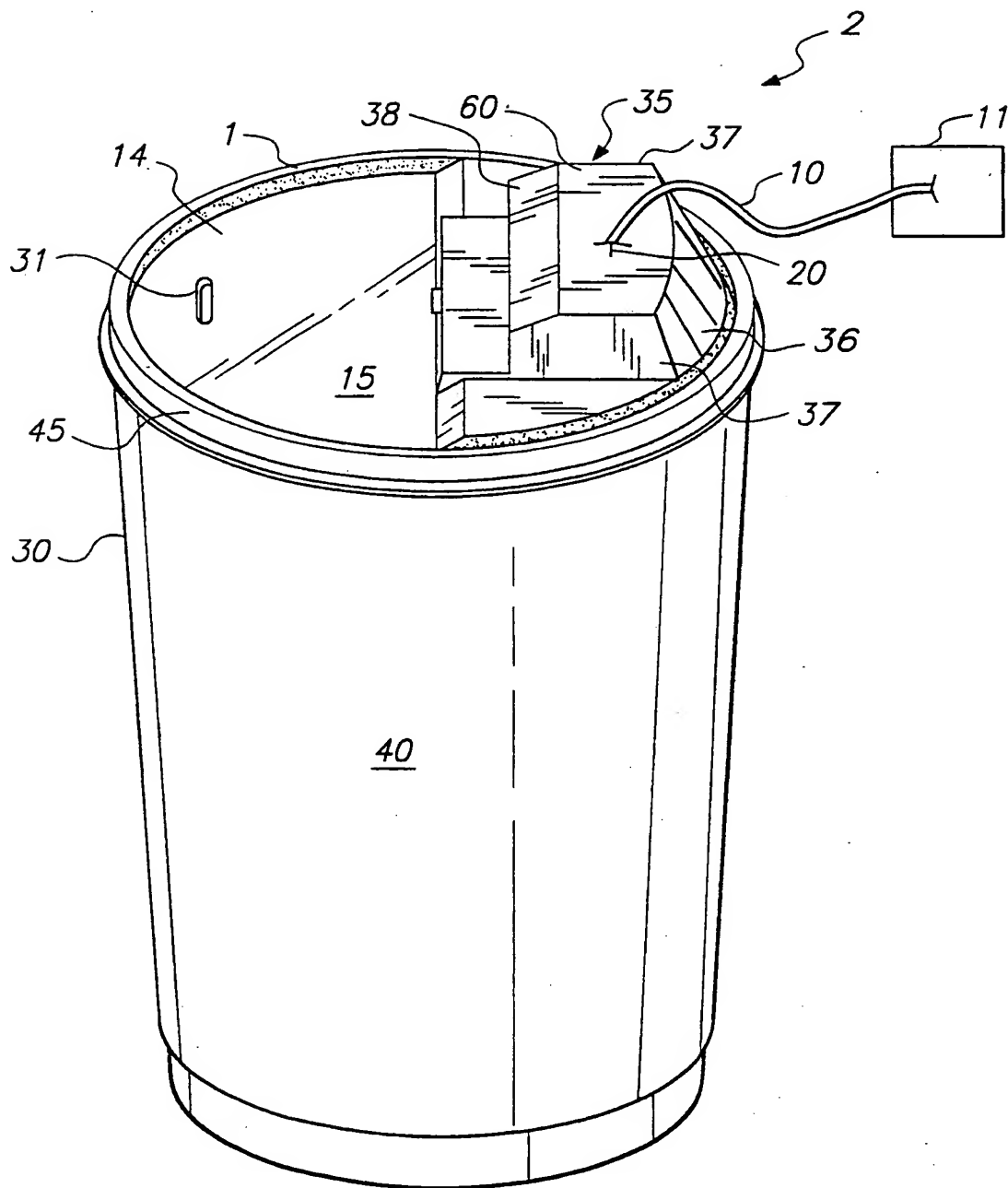
- 4 a. securing the detachable lid to the container;
- 5 b. raising the porous filter bag towards the detachable lid thus stopping the  
6 infusion process wherein the detachable lid allows the liquid to be  
7 consumed without removing the detachable lid from the container; and
- 8 c. securely holding the porous filter bag through an aperture wherein the  
9 porous filter bag is located near the detachable lid.



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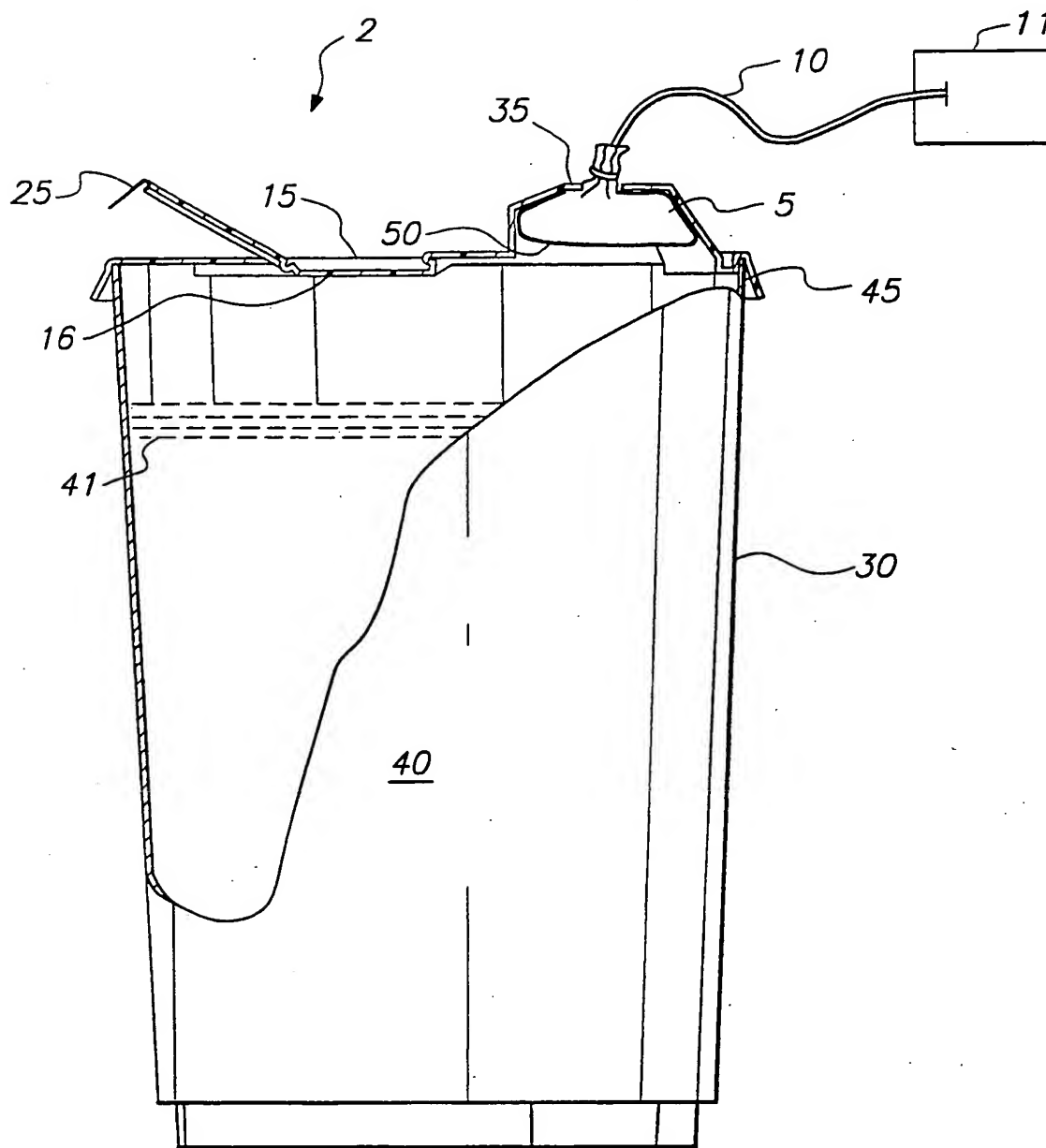
**FIG. 1A**

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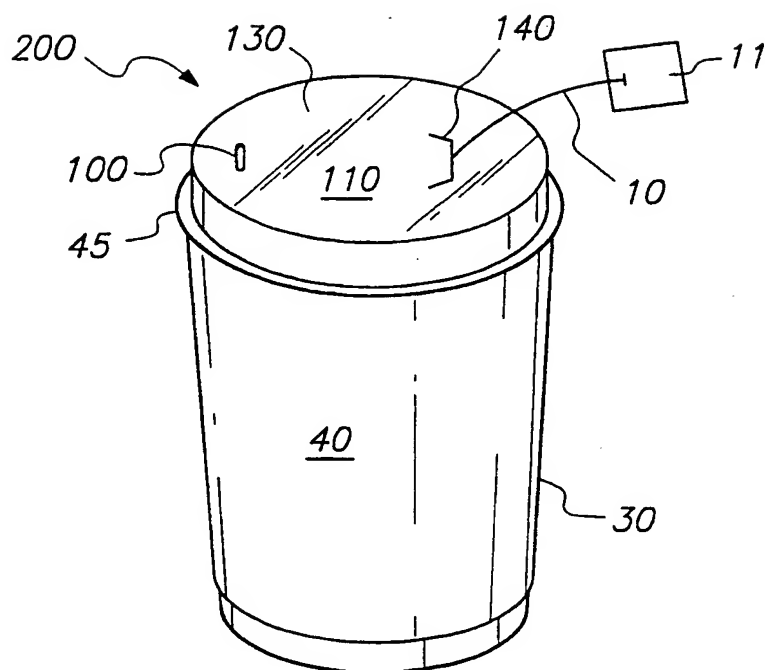
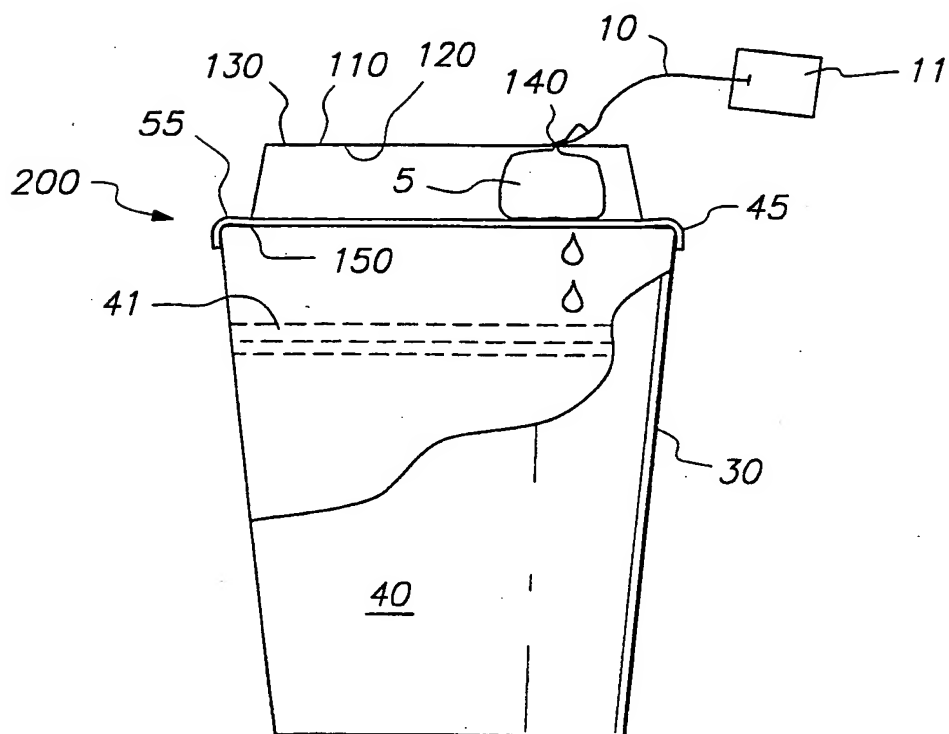
**FIG. 1B**

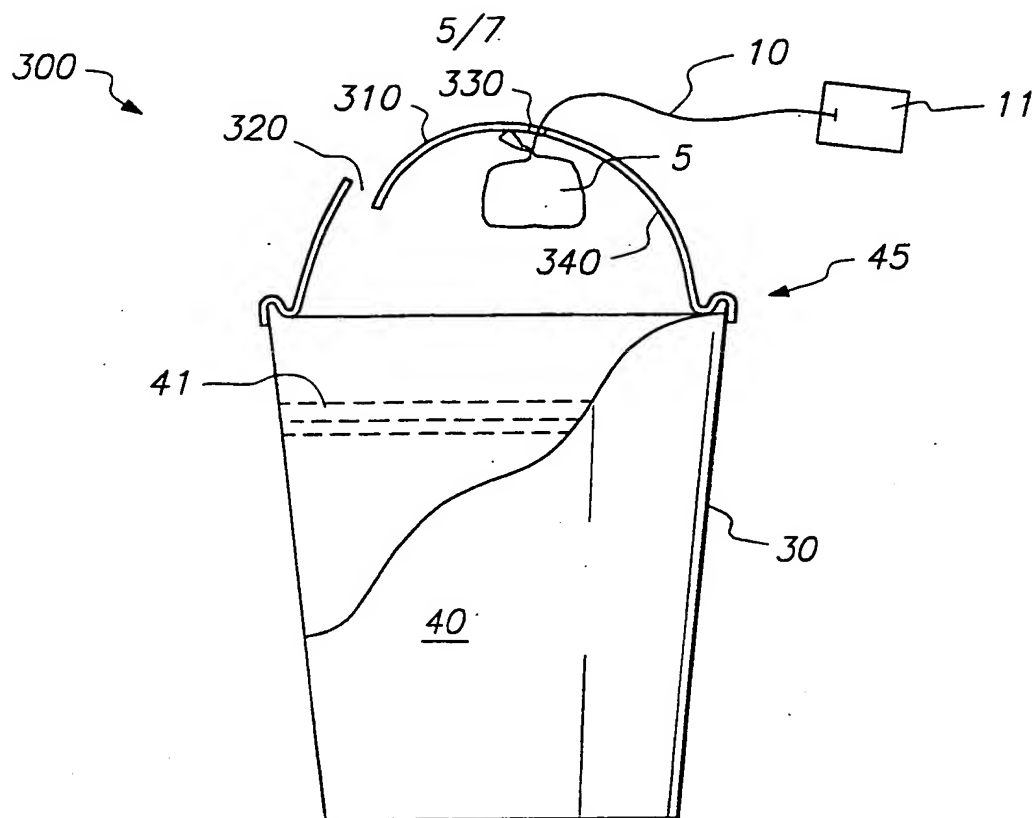
3/7



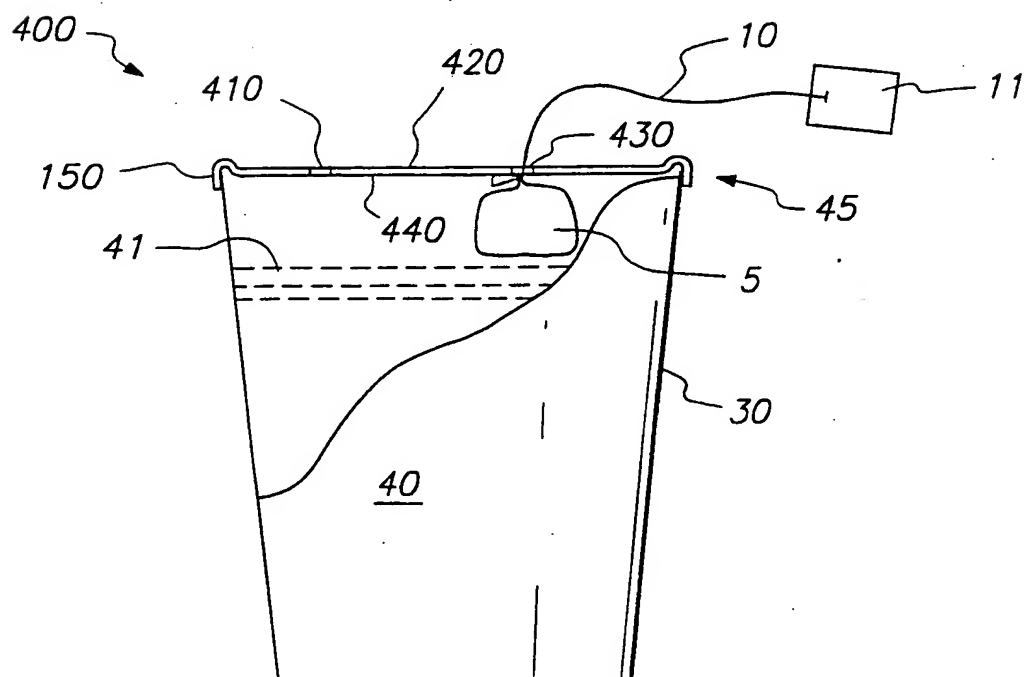
**FIG. 2**

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**FIG. 3****FIG. 4**

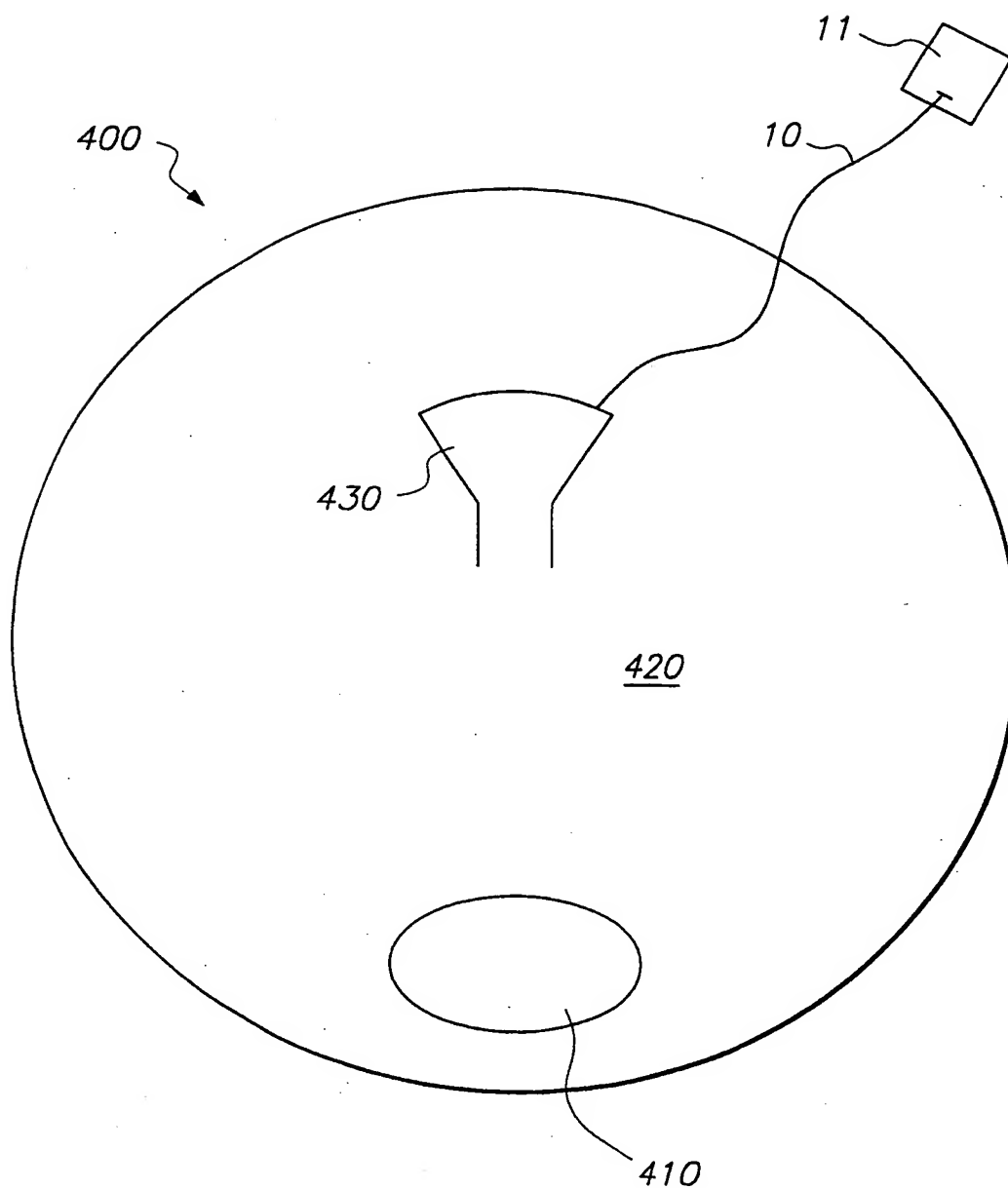


**FIG. 5**

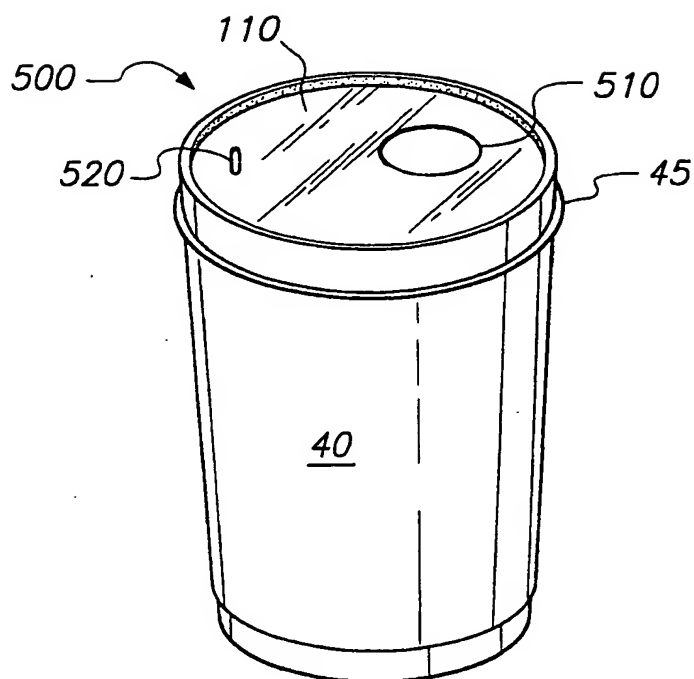


**FIG. 6**

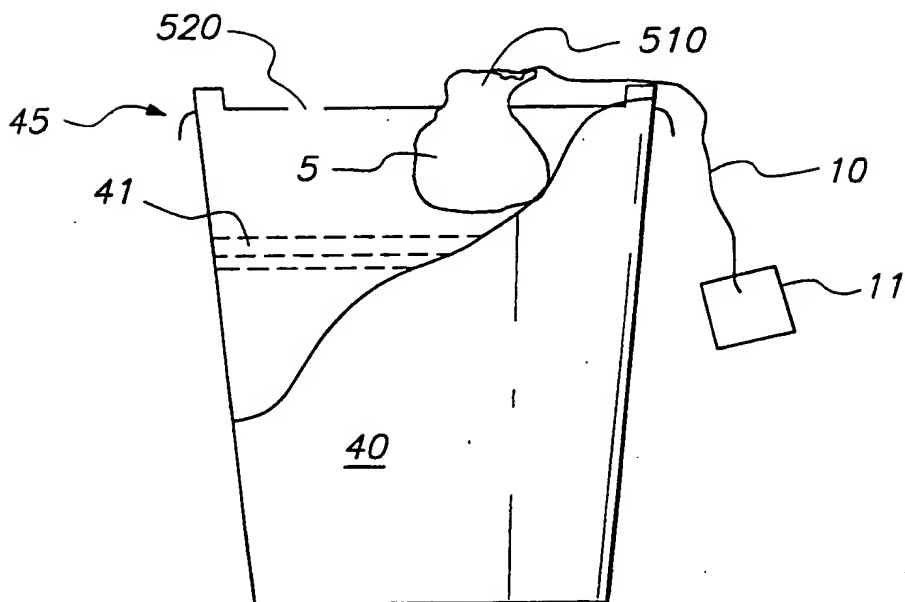
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**FIG. 7**

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**FIG. 8**



**FIG. 9**

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/07047

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A47G 19/22

US CL : 220/712

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 220/712,254,711,713,717,718,780,796,798,801,802,DIG. 13; 215/387; 426/77,80,83,435

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 5,398,843 A (WARDEN et al) 21 MARCH 1995, see entire document.	1,3-5,7-17,19,21-25,27-29,31-36 ----- 2,6,18,20,2 6,30
X	US 3,861,284 A (COSTELLO) 21 JANUARY 1975, see entire document.	1,3-17 19-29, 31-36
Y	US 4,210,272 A (SEQUIN) 01 JULY 1980, see entire document.	1,3-17,19-29, 31-36
Y	US 2,182,872 A (KARL) 12 DECEMBER 1939, see entire document.	2,18,30



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

09 JULY 1998

Date of mailing of the international search report

30 JUL 1998

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/07047

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,409,131 A (PHILLIPS et al) 25 APRIL 1995, see entire document.	2,18,30
A	US 4,441,624 A (SOKOLOWSKI) 10 APRIL 1984, see entire document.	all

